

# IceCube: A Kilometer-Scale Neutrino Observatory

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The IceCube Neutrino Detector is a neutrino telescope currently under construction at the South Pole. IceCube is being constructed in deep Antarctic ice by deploying almost 5000 spherical optical sensors at depths between 1,450 and 2,450 meters. The main goal of the experiment is to detect high energy extraterrestrial neutrinos, spanning the energy range from  $10^{11}$  eV to about  $10^{21}$  eV. The detector used the Earth as shield against cosmic ray particles and searches for neutrino-induced up-going showers in the ice. The sources of those neutrinos could be black holes, gamma ray bursters, or supernova remnants. The data that IceCube will collect will also contribute to our understanding of cosmic rays, supersymmetry, weakly interacting massive particles (WIMPS), and other aspects of nuclear and particle physics.